AMENDMENTS TO THE CLAIMS

This listing of claims will replace all versions and listings of claims in this application.

Listing of Claims

1. (Original) A synthetic double-stranded deoxyribonucleic acid (DNA) vector comprising one or more pairs of chemically-synthesized, overlapping complementary oligonucleotides, wherein the vector comprises a ribonucleic acid (RNA) promoter, a region to be transcribed into a RNA molecule, and a transcriptional termination sequence.

2. (Original) The vector of Claim 1, wherein the vector is linear.

3. (Original) The vector of Claim 1, wherein the vector is circular.

4. (Original) The vector of Claim 1, wherein the promoter is selected from the group consisting of human H1 polymerase II promoter, human type 1 polymerase III promoter, human type 2 polymerase III promoter, human type 3 polymerase III promoter, human pol II promoter, adenovirus major late promoter, and tissue-specific or inducible variants thereof.

5. (Original) The vector of Claim 4, wherein the promoter region has the sequence set forth by SEQ ID NO:20.

6. (Original) The vector of Claim 4, wherein the promoter region has the sequence set forth by SEQ ID NO:21.

7. (Original) The vector of Claim 4, wherein the promoter region has the sequence set forth by SEQ ID NO:22.

8. (Original) An isolated nucleic acid selected from the group consisting of SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, and SEQ ID NO:34, wherein said nucleic acid is a vector.

9. (Original) The vector of Claim 4, wherein the tissue-specific variant promoter comprises minimal promoter elements from a gene selected from the group consisting of prepro-endothelin-1 gene, myelin basic protein gene, metallothionein gene, neurofibramatosis-1 gene, growth hormone factor 1 gene, peripherin gene, fibroin gene, JC virus gene, and period-1 gene.

10. (Original) The vector of Claim 9, wherein the tissue-specific variant promoter has the sequence set forth by SEQ ID NO:7.

11. (Original) The vector of Claim 4, wherein the inducible variant promoter is the human pol II promoter comprising the estrogen response elements A and B or SEQ ID NO:10 and SEQ ID NO:11, respectively.

12. (Original) The vector of Claim 4, wherein the pol II promoter further comprises a tethered transactivator peptide.

13. (Original) The vector of Claim 12, wherein the transactivator peptide is a peptide selected from a group consisting of one or more of peptides comprising the sequence of SEQ ID NO:8 and SEQ ID NO:9.

14. (Original) The vector of Claim 1, wherein the region to be transcribed is a DNA sequence encoding a ss or ds RNA molecule.

15. (Original) The vector of Claim 14, wherein the RNA molecule is selected from the group consisting of a hairpin RNA molecule that can be converted into a short, interfering RNA by RNase III, an antisense oligonucleotide, and a ribozyme.

16. (Original) The vector of Claim 14, wherein the RNA molecule has the sequence of SEQ ID NO:1.

17. (Original) The vector of Claim 14, wherein the RNA molecule has the sequence of SEQ ID NO:16.

18. (Original) The vector of Claim 1, further comprising a heteroduplex bubble.

19. (Original) The vector of Claim 1, wherein the one or more oligonucleotides comprise a covalently attached moiety selected from the group consisting of a protein transduction domain, an RGD peptide, a receptor ligand, an antibody, a nuclear localization sequence, an endosmolytic peptide, a fluorescent beacon, and combinations thereof.

20. (Original) The vector of Claim 1, wherein the vector is from about 50 bp to about 135 bp in length.

21. (Original) The vector of Claim 1, wherein the vector is from about 50 bp to about 2000 bp in length.

22. (Original) A host cell comprising the vector of Claim

23. (Withdrawn) A method of generating the vector of Claim 1 comprising annealing two or more complementary synthetic oligonucleotides to form a double-stranded DNA molecule.

24. (Withdrawn) The method of Claim 23, wherein said oligonucleotides are ligated extracellularly.

25. (Withdrawn) The method of Claim 24, wherein said oligonucleotides are ligated intracellularly.

26. (Withdrawn) A method for expressing a ss or ds RNA molecule in a target cell comprising administering to the target cell the vector of Claim 1 in an amount effective to express a ss or ds RNA molecule in the target cell.

27. (Withdrawn) A method for expressing a ss or ds RNA molecule in a target cell comprising administering to the target cell the vector of Claim 14, wherein the ss or ds RNA molecule is expressed.

28. (Withdrawn) A method of inhibiting gene expression in a target cell comprising administering to a target cell the vector of Claim 1 in an amount effective to inhibit gene expression in the target cell.

29. (Withdrawn) A method of inhibiting gene expression in a target cell comprising administering to a target cell the vector of Claim 14 in an amount effective to inhibit gene expression in the target cell.

30. (Original) A synthetic vector made by the method of Claim 23.

31. (Original) A synthetic vector made by the method of Claim 24.

32. (Original) A synthetic vector made by the method of Claim 25.